11111 Katy Freeway, Suite 200
Houston, TX 77079
Tel. (281) 285-1050
Fax (281) 285-1090

Schlumberger

Department of the Interior
Minerals Management Service
381 Elden Street MS-4024
Herndon, VA 20170-4817

Attention: Rules Processing Team
Regarding: API RP 65 for Cementing Shallow Water Flow Zones; MMS RIN 1010-AD19

Ladies and Gentlemen:

Schlumberger would like to thank you for the opportunity to provide feedback concerning the incorporation of API RP65 into MMS regulations. In our opinion, the MMS regulations should provide unencumbered access to all proven technical solutions for preventing shallow water flows. The present version of RP65 reflects the state of the art at the time the document was written (2000–2002), and does not anticipate the development of new technologies. We are particularly concerned about the potential incorporation of Table A-2 in Appendix F—Key Cementing Parameters for Shallow Water Flow Hazards in Deep Water, as it potentially limits access to new and future technologies. In our opinion, this type of scorecard system should not be incorporated into future regulations, and Appendix F of RP 65 should be eliminated from any future regulatory document.

Table A-2 is weighted in favor of compressible cement systems, which were the best available solution when RP65 was written. Since then, non-compressible solutions have been introduced that reliably prevent shallow water flows. One example is a blended cement system with an engineered particle size distribution (EPS).

Field results have shown that EPS blends are as suitable for controlling shallow water flows in deep water as nitrified, compressible fluids. In October 2001, Schlumberger pumped the first EPS blend to mitigate shallow water flow in the Gulf of Mexico. This job was performed in Mississippi Canyon Block 392, on a 26-inch riserless casing string as part of the Marco Polo development campaign. Since then, EPS blends have been used to cement over 90 deepwater wells. Many of these wells were experiencing shallow flows before the cement job. Some of the more significant projects are listed below:

Client	Project	Well Location	Date	Number of Jobs
Anadarko	Marco Polo	Green Canyon 608	2002	6
BP	Atlantis	Desoto Canyon	2004	30
BP	Thunderhorse	Mississippi Canyon	2005-2006	22
BP	Mad Dog	Green Canyon 782	2005	3

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Further work with EPS systems has been completed with Amerada Hess, AGIP Petroleum, Dominion E&P, Ocean Energy and Pioneer. Future applications include Neptune Development top-hole sections for BHP Billiton and BP Thunderhorse and all future top-hole sections in deep water for Hess and Devon Energy.

EPS blends have proved to be an attractive alternative to compressible fluids during the appraisal and development stage of drilling projects. During this phase, better control is established on formation pore and fracture gradients, allowing better control of planned mud weights and planned slurry densities. In such cases, the variable density of nitrified slurries is less important to cement-job execution, and the logistical and HSE advantages of non-nitrified slurries are attractive to some operators.

Non-compressible EPS systems combat flow in two ways. First, EPS blends are paired with liquid additives that enhance static-gel-strength development and reduce the Critical Gel Strength Period as outlined in RP 65. Target values for static gel strength development between 100 to 500 lbf/100 ft^2 are set and attained within less than 30 min. Second, the solids content of the slurry is maximized to reduce permeability. EPS blends contain at least 55% solids. The liquid phase also contains a microgel or latex additive that further increases the solid content. Both of these features provide a cement system that has successfully controlled known shallow water flow intervals.

Table A-2 in Appendix F seeks to provide a quick and effective method for operators or regulators to assess compliance with RP 65. The table lists pertinent job design parameters, for which points are assigned based on the level of compliance. A total score of 112 points is attainable. As currently written, the table would penalize designs incorporating non-compressible cementing solutions. Operators wishing to use solutions other than foamed cements could be obliged to provide special justification to regulators. Specifically, two sections in Table A-2, 1) Critical Cementing Fluids Parameters and 2) Critical Cementing Equipment, have direct reference to compressible or nitrified cementing fluids or equipment related to foam cementing. Operators electing to use a non-compressible cement system would forfeit 12 points.

In order to eliminate the bias toward foamed or compressible fluids, and ensure full and free access to current and future cementing technologies, we request the elimination of Table A-2 in Appendix F of RP 65 from any future MMS regulations.

We hope you will favorably consider our suggestions. If you require clarification or further technical information please feel free to contact Schlumberger through one of the representatives listed below.

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Schlumberger

Erick Cunningham
Gulf Coast GeoMarket Technical Engineer
Schlumberger
11111 Katy Freeway, Suite 200,
Houston, TX 77079,
Office: 281-285-1087
Mobile: 281-684-2622

Jochen Pfeiffer
North and South America Business Development Manager
Schlumberger
16115 Park Row, Ste 190
Houston, TX 77079,
Office: 281-285-6310
Mobile: 713-859-0667

Erik Nelson
Engineering Advisor
Schlumberger
10610 Willowisp Drive
Sugar Land, TX 77035
Office: 713-723-1691
Mobile: 832-752-2000